

US EPA ARCHIVE DOCUMENT

APPENDIX J

Required Revisions to the Sediment Trap Monitoring and Maintenance Plan Regarding Cylindrical Sampling Devices (CSD) Placement/Anchoring, Monitoring and Sampling/Analysis

U.S. EPA is requiring that the following revisions be made to the Sediment Trap Monitoring and Maintenance Plan (Plan) regarding CSD placement/anchoring, monitoring, and sampling/analysis:

- Revise the CSD sample laboratory analyses parameter list in Section 5 of the Plan to include oil fingerprinting analysis, particle size distribution (PSD) analysis, and total organic carbon (TOC) analysis for all samples. The oil fingerprinting analyses shall include the following parameters as described in Section 1.0 of the approved Enbridge Analytical Quality Assurance Plan dated December 21, 2012:
 - Polycyclic Aromatic Hydrocarbons and Sulfur Heterocyclic Compounds (PAHs) including alkyl homologues by gas chromatography with low resolution mass spectrometry using selected ion monitoring (GC/MS-SIM using U.S. EPA Method 8270D).
 - Saturate hydrocarbons by gas chromatography with flame ionization detection (GC/FID) based on U.S. EPA Method 8015.
 - Total Extractable Hydrocarbons (TEH₂) representing the total aromatic and aliphatic hydrocarbon content of sample extracts after silica gel clean-up and analysis by GC/FID.

For all CSD samples collected to date that are on hold, revise the plan to require completion of laboratory analysis for the parameters listed above and submittal of all sample analytical results to U.S. EPA. Enbridge may propose, for approval by U.S. EPA, a subset of CSD samples that are on hold for required laboratory analysis, based on flow conditions encountered over the sample collection time and CSD disturbances documented for some of the samples collected.

- The following adjustments shall be made to Section 5 of the Plan regarding the methods for CSD sample collection:
 - Field measurements and recording of the thickness of sediment present in all sample cylinders during each monitoring event (e.g., measurements to include separate sediment thickness measurements for two sample cylinders per CSD location);
 - Collection and separate containerization of sediment material present in each sample cylinder during each monitoring event (e.g., including collection and separate containerization of sediment from two sample cylinders per CSD location);

- Measurement of filtered weights by laboratory for all collected samples;
 - Upon completion of the filtered weight measurements, Enbridge shall hold a focus meeting with U.S.EPA representatives to identify and select samples for lab analysis based on sample weight data;
 - Laboratory shall complete modified Integrated Sampling Method (ISM) and compositing of two separate container samples from each CSD location for laboratory analysis; if total sample volume from both containers is not sufficient to proceed with laboratory analysis, laboratory shall be required to hold sample for potential compositing with the sample from the same CSD collected the following month (in consultation with U.S. EPA);
 - Laboratory analysis of all selected or prioritized samples for the parameters listed above.
- CSD sampler placement/anchoring methods shall include the following:
 - Reconfiguration of connecting ropes or lines for CSD marker buoys such that the marker buoy lines are NOT directly connected to the wooden box housings for the CSD sample cylinders, rather, are connected to a separate river bottom anchor located nearby. If connecting lines (e.g., attached to the wooden box housings) are needed to bring the CSDs to the surface for sample retrieval, they shall consist of metal chain or equivalent material that can remain fully on the river bottom between sample events.
 - For CSDs that are prone to disturbance due to tilting and/or sinking into the soft river bottom sediment, a base with larger dimensions shall be added to the existing wooden box CSD housings. The modified, larger bases may be constructed of wood and can be attached to the existing housings. One or more field trials may be necessary to identify the most effective dimensions for the modified bases.
 - Recovery/replacement of all damaged or moved CSD samplers is required as follows:
 - As soon as safe river conditions allow in 2013, recover and/or replace all damaged or moved CSDs to original locations following the procedures outlined above for placement/anchoring.